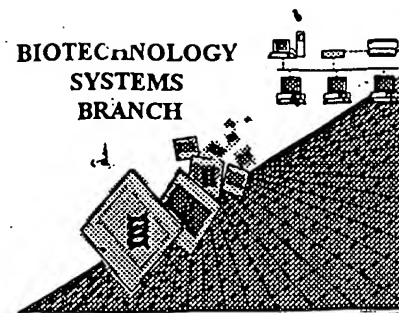


RAW SEQUENCE LISTING **ERROR REPORT**

BIOTECHNOLOGY
SYSTEMS
BRANCH



0450
0590
0118

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 10 1000, 151

Source: OIPe

Date Processed by STIC: 12/10/01

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
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FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.

PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)

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The Checker Version 3.0 application is a state-of-the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 – 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.

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<http://www.uspto.gov/web/offices/pac/checker>

OIPE

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/000,151

DATE: 12/10/2001

TIME: 15:02:00

Input Set : A:\HERG-KCR1.ST25.txt

Output Set: N:\CRF3\12102001\I000151.raw

**Does Not Comply
Corrected Diskette Needed**

Errors on p. 143

3 <110> APPLICANT: Vanderbilt University
 4 Balser, Jeffrey R.
 5 George, Alfred L.
 6 Roden, Dan M.
 8 <120> TITLE OF INVENTION: HUMAN KCR1 REGULATION OF HERG POTASSIUM CHANNEL BLOCK
 10 <130> FILE REFERENCE: 1242-49
 C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/000,151
 C--> 12 <141> CURRENT FILING DATE: 2001-10-30
 12 <150> PRIOR APPLICATION NUMBER: 60/244,340
 13 <151> PRIOR FILING DATE: 2000-10-30
 15 <160> NUMBER OF SEQ ID NOS: 7
 17 <170> SOFTWARE: PatentIn version 3.1
 19 <210> SEQ ID NO: 1
 20 <211> LENGTH: 1857
 21 <212> TYPE: DNA
 22 <213> ORGANISM: Homo sapiens
 24 <220> FEATURE:
 25 <221> NAME/KEY: CDS
 26 <222> LOCATION: (1)..(1422) → there is no n within this range
 27 <223> OTHER INFORMATION: n is any nucleotide
 30 <220> FEATURE:
 31 <221> NAME/KEY: misc_feature
 32 <222> LOCATION: (1)..(1857)
 33 <223> OTHER INFORMATION: n is any nucleotide
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 38 Met Ala Gln Leu Glu Gly Tyr Cys Phe Ser Ala Ala Leu Ser Cys Thr
 39 1 5 10 15
 41 ttt tta gtg tcc tgc ctc ctc ttc tcc gcc ttc agc cgg gcg ctg cga 96
 42 Phe Leu Val Ser Cys Leu Leu Phe Ser Ala Phe Ser Arg Ala Leu Arg
 43 20 25 30
 45 gag ccc tac atg gac gag atc ttc cac ctg cct cag gcg cag cgc tac 144
 46 Glu Pro Tyr Met Asp Glu Ile Phe His Leu Pro Gln Ala Gln Arg Tyr
 47 35 40 45
 49 tgt gag ggc cat ttc tcc ctt tcc cag tgg gat ccc atg att act aca 192
 50 Cys Glu Gly His Phe Ser Leu Ser Gln Trp Asp Pro Met Ile Thr Thr
 51 50 55 60
 53 tta cct ggc ttg tac ctg gtg tca gtt gga gtg gtc aaa cct gcc att 240
 54 Leu Pro Gly Leu Tyr Val Ser Val Gly Val Val Lys Pro Ala Ile
 55 65 70 75 80
 57 tgg atc ttt gga tgg tct gaa cat gtt gtc tgc tcc att ggg atg ctc 288
 58 Trp Ile Phe Gly Trp Ser Glu His Val Val Cys Ser Ile Gly Met Leu
 59 85 90 95
 61 aga ttt gtt aat ctt ctc ttc agt gtt ggc aac ttc tat tta cta tat 336
 62 Arg Phe Val Asn Leu Leu Phe Ser Val Gly Asn Phe Tyr Leu Leu Tyr
 63 100 105 110
 65 ttg ctt ttc cac aag gta caa ccc aga aac aag gct gcc tca agt atc 384

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/000,151

DATE: 12/10/2001

TIME: 15:02:00

Input Set : A:\HERG-KCR1.ST25.txt

Output Set: N:\CRF3\12102001\I000151.raw

66	Leu	Leu	Phe	His	Lys	Val	Gln	Pro	Arg	Asn	Lys	Ala	Ala	Ser	Ser	Ile	
67			115					120					125				
69	cag	aga	gtc	ttg	tca	aca	tta	aca	cta	gca	gta	ttt	cca	aca	ctt	tat	432
70	Gln	Arg	Val	Leu	Ser	Thr	Leu	Thr	Leu	Ala	Val	Phe	Pro	Thr	Leu	Tyr	
71		130					135					140					
73	ttt	ttt	aac	ttc	ctt	tat	tat	aca	gaa	gca	gga	tct	atg	ttt	ttt	act	480
74	Phe	Phe	Asn	Phe	Leu	Tyr	Tyr	Thr	Glu	Ala	Gly	Ser	Met	Phe	Phe	Thr	
75	145				150					155						160	
77	ctt	ttt	gca	tat	ttg	atg	tgt	ctt	tat	gga	aat	cat	aaa	act	tca	gcc	528
78	Leu	Phe	Ala	Tyr	Leu	Met	Cys	Leu	Tyr	Gly	Asn	His	Lys	Thr	Ser	Ala	
79				165					170					175			
81	ttc	ctt	gga	ttt	tgt	ggc	ttc	atg	ttt	cgg	caa	aca	aat	atc	atc	tgg	576
82	Phe	Leu	Gly	Phe	Cys	Gly	Phe	Met	Phe	Arg	Gln	Thr	Asn	Ile	Ile	Trp	
83			180						185					190			
85	gct	gtc	ttc	tgt	gca	ggg	aat	gtc	att	gca	caa	aag	tta	act	gag	gct	624
86	Ala	Val	Phe	Cys	Ala	Gly	Asn	Val	Ile	Ala	Gln	Lys	Leu	Thr	Glu	Ala	
87		195					200						205				
89	tgg	aaa	act	gag	cta	caa	aag	aag	gaa	gac	aga	ctt	cca	cct	att	aaa	672
90	Trp	Lys	Thr	Glu	Leu	Gln	Lys	Lys	Glu	Asp	Arg	Leu	Pro	Pro	Ile	Lys	
91		210					215					220					
93	gga	cca	ttt	gca	gaa	ttc	aga	aaa	att	ctt	cag	ttt	ctt	ttg	gct	tat	720
94	Gly	Pro	Phe	Ala	Glu	Phe	Arg	Lys	Ile	Leu	Gln	Phe	Leu	Leu	Ala	Tyr	
95	225				230					235						240	
97	tcc	atg	tcc	ttt	aaa	aac	ttg	agt	atg	ctt	ttc	tgt	ttg	act	tgg	ccc	768
98	Ser	Met	Ser	Phe	Lys	Asn	Leu	Ser	Met	Leu	Phe	Cys	Leu	Thr	Trp	Pro	
99				245					250					255			
101	tac	atc	ctt	ctg	gga	ttt	ctg	ttt	tgt	gct	ttt	gta	gta	gtt	aat	ggt	816
102	Tyr	Ile	Leu	Leu	Gly	Phe	Leu	Phe	Cys	Ala	Phe	Val	Val	Val	Asn	Gly	
103			260						265					270			
105	gga	att	gtt	att	ggc	gat	cgg	agt	agt	cat	gaa	gcc	tgt	ctt	cat	ttt	864
106	Gly	Ile	Val	Ile	Gly	Asp	Arg	Ser	Ser	His	Glu	Ala	Cys	Leu	His	Phe	
107		275					280						285				
109	cct	caa	cta	ttc	tac	ttt	ttt	tca	ttt	act	ctc	ttt	ttt	tct	ttt	cct	912
110	Pro	Gln	Leu	Phe	Tyr	Phe	Phe	Ser	Phe	Thr	Leu	Phe	Phe	Ser	Phe	Pro	
111		290					295					300					
113	cat	ctc	ctg	tct	cct	agc	aaa	att	aag	act	ttt	ctt	tcc	tta	gtt	tgg	960
114	His	Leu	Leu	Ser	Pro	Ser	Lys	Ile	Lys	Thr	Phe	Leu	Ser	Leu	Val	Trp	
115	305				310						315					320	
117	aaa	cat	gga	att	ctg	ttt	ttg	gtg	gtt	acc	tta	gtc	tct	gtg	ttt	tta	1008
118	Lys	His	Gly	Ile	Leu	Phe	Leu	Val	Val	Thr	Leu	Val	Ser	Val	Phe	Leu	
119				325					330					335			
121	gtt	tgg	aaa	ttc	act	tat	gct	cat	aaa	tac	ttg	cta	gca	gac	aat	aga	1056
122	Val	Trp	Lys	Phe	Thr	Tyr	Ala	His	Lys	Tyr	Leu	Leu	Ala	Asp	Asn	Arg	
123			340						345					350			
125	cat	tat	act	ttc	tat	gtg	tgg	aaa	aga	gtt	ttt	caa	aga	tat	gca	att	1104
126	His	Tyr	Thr	Phe	Tyr	Val	Trp	Lys	Arg	Val	Phe	Gln	Arg	Tyr	Ala	Ile	
127		355					360						365				
129	ctg	aaa	tat	ttg	tta	gtt	cca	gcc	tat	ata	ttt	gct	ggt	tgg	agt	ata	1152
130	Leu	Lys	Tyr	Leu	Leu	Val	Pro	Ala	Tyr	Ile	Phe	Ala	Gly	Trp	Ser	Ile	

RAW SEQUENCE LISTING

DATE: 12/10/2001

PATENT APPLICATION: US/10/000,151

TIME: 15:02:00

Input Set : A:\HERG-KCR1.ST25.txt

Output Set: N:\CRF3\12102001\I000151.raw

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131      370      375      380
133 gct gac tca ttg aaa tca aag cca att ttt tgg aat tta atg ttt ttc      1200
134 Ala Asp Ser Leu Lys Ser Lys Pro Ile Phe Trp Asn Leu Met Phe Phe
135 385      390      395      400
137 ata tgc ttg ttc att gtt ata gtt cct cag aaa ctg ctg gaa ttt cgt      1248
138 Ile Cys Leu Phe Ile Val Ile Val Pro Gln Lys Leu Leu Glu Phe Arg
139      405      410      415
141 tac ttc att tta cct tat gtc att tat agg ctt aac ata act ctg cct      1296
142 Tyr Phe Ile Leu Pro Tyr Val Ile Tyr Arg Leu Asn Ile Thr Leu Pro
143      420      425      430
145 ccc aca tcc aga ctt gtt tgt gaa ctg agt tgc tat gca att gtt aat      1344
146 Pro Thr Ser Arg Leu Val Cys Glu Leu Ser Cys Tyr Ala Ile Val Asn
147      435      440      445
149 ttc ata act ttt tac atc ttt ctg aac aag act ttt cag tgg cca aat      1392
150 Phe Ile Thr Phe Tyr Ile Phe Leu Asn Lys Thr Phe Gln Trp Pro Asn
151      450      455      460
153 agt cag gac att caa agg ttt atg tgg taa tatcagtgat attttgaact      1442
154 Ser Gln Asp Ile Gln Arg Phe Met Trp
155 465      470
W--> 157 gtaaaaatgg acttaataat agaccatttc tacaaagaac aactgaatag gnggaaaaca      1502
159 tggaatttct tttaggtgca gtggtggtct tcaaattaca ttagtttttt taatatatat      1562
161 tttaaacata tgtaagaaat taagtggcaa agaactggga aagcttaaga cctgcttcaa      1622
W--> 163 angcctgaat aatgggaaaa taaanwngtt tncagatatt tcatatcgct cnnknatgn      1682
W--> 165 tggcccytmn caangcttgg gaatgkttnn wntgnataag ttnattaaan ctgggnntgc      1742
W--> 167 tnnmwatnac ttnnnkncca nccwnnnwac natgnntan nnantattta caaaggtcag      1802
W--> 169 gtgatattct tgactgaaaa gtgctctnaa cataaaagta aatatnggcc ncaa      1857
172 <210> SEQ ID NO: 2
173 <211> LENGTH: 473
174 <212> TYPE: PRT
175 <213> ORGANISM: Homo sapiens
177 <220> FEATURE:
178 <221> NAME/KEY: misc.feature
179 <222> LOCATION: (1)..(1857)
180 <223> OTHER INFORMATION: n is any nucleotide
182 <400> SEQUENCE: 2
184 Met Ala Gln Leu Glu Gly Tyr Cys Phe Ser Ala Ala Leu Ser Cys Thr
185 1      5      10      15
188 Phe Leu Val Ser Cys Leu Leu Phe Ser Ala Phe Ser Arg Ala Leu Arg
189      20      25      30
192 Glu Pro Tyr Met Asp Glu Ile Phe His Leu Pro Gln Ala Gln Arg Tyr
193      35      40      45
196 Cys Glu Gly His Phe Ser Leu Ser Gln Trp Asp Pro Met Ile Thr Thr
197      50      55      60
200 Leu Pro Gly Leu Tyr Leu Val Ser Val Gly Val Val Lys Pro Ala Ile
201 65      70      75      80
204 Trp Ile Phe Gly Trp Ser Glu His Val Val Cys Ser Ile Gly Met Leu
205      85      90      95
208 Arg Phe Val Asn Leu Leu Phe Ser Val Gly Asn Phe Tyr Leu Leu Tyr
209      100      105      110

```

*n does not exist within
this range*

*→ "n" can not be in
an amino acid sequence*

RAW SEQUENCE LISTING

DATE: 12/10/2001

PATENT APPLICATION: US/10/000,151

TIME: 15:02:00

Input Set : A:\HERG-KCR1.ST25.txt

Output Set: N:\CRF3\12102001\I000151.raw

```

212 Leu Leu Phe His Lys Val Gln Pro Arg Asn Lys Ala Ala Ser Ser Ile
213      115      120      125
216 Gln Arg Val Leu Ser Thr Leu Thr Leu Ala Val Phe Pro Thr Leu Tyr
217      130      135      140
220 Phe Phe Asn Phe Leu Tyr Tyr Thr Glu Ala Gly Ser Met Phe Phe Thr
221 145      150      155      160
224 Leu Phe Ala Tyr Leu Met Cys Leu Tyr Gly Asn His Lys Thr Ser Ala
225      165      170      175
228 Phe Leu Gly Phe Cys Gly Phe Met Phe Arg Gln Thr Asn Ile Ile Trp
229      180      185      190
232 Ala Val Phe Cys Ala Gly Asn Val Ile Ala Gln Lys Leu Thr Glu Ala
233      195      200      205
236 Trp Lys Thr Glu Leu Gln Lys Lys Glu Asp Arg Leu Pro Pro Ile Lys
237      210      215      220
240 Gly Pro Phe Ala Glu Phe Arg Lys Ile Leu Gln Phe Leu Leu Ala Tyr
241 225      230      235      240
244 Ser Met Ser Phe Lys Asn Leu Ser Met Leu Phe Cys Leu Thr Trp Pro
245      245      250      255
248 Tyr Ile Leu Leu Gly Phe Leu Phe Cys Ala Phe Val Val Val Asn Gly
249      260      265      270
252 Gly Ile Val Ile Gly Asp Arg Ser Ser His Glu Ala Cys Leu His Phe
253      275      280      285
256 Pro Gln Leu Phe Tyr Phe Phe Ser Phe Thr Leu Phe Phe Ser Phe Pro
257      290      295      300
260 His Leu Leu Ser Pro Ser Lys Ile Lys Thr Phe Leu Ser Leu Val Trp
261 305      310      315      320
264 Lys His Gly Ile Leu Phe Leu Val Val Thr Leu Val Ser Val Phe Leu
265      325      330      335
268 Val Trp Lys Phe Thr Tyr Ala His Lys Tyr Leu Leu Ala Asp Asn Arg
269      340      345      350
272 His Tyr Thr Phe Tyr Val Trp Lys Arg Val Phe Gln Arg Tyr Ala Ile
273      355      360      365
276 Leu Lys Tyr Leu Leu Val Pro Ala Tyr Ile Phe Ala Gly Trp Ser Ile
277      370      375      380
280 Ala Asp Ser Leu Lys Ser Lys Pro Ile Phe Trp Asn Leu Met Phe Phe
281 385      390      395      400
284 Ile Cys Leu Phe Ile Val Ile Val Pro Gln Lys Leu Leu Glu Phe Arg
285      405      410      415
288 Tyr Phe Ile Leu Pro Tyr Val Ile Tyr Arg Leu Asn Ile Thr Leu Pro
289      420      425      430
292 Pro Thr Ser Arg Leu Val Cys Glu Leu Ser Cys Tyr Ala Ile Val Asn
293      435      440      445
296 Phe Ile Thr Phe Tyr Ile Phe Leu Asn Lys Thr Phe Gln Trp Pro Asn
297      450      455      460
300 Ser Gln Asp Ile Gln Arg Phe Met Trp
301 465      470
304 <210> SEQ ID NO: 3
305 <211> LENGTH: 1159
306 <212> TYPE: PRT

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RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/000,151

DATE: 12/10/2001

TIME: 15:02:00

Input Set : A:\HERG-KCRL.ST25.txt

Output Set: N:\CRF3\12102001\I000151.raw

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307 <213> ORGANISM: Homo sapiens
309 <400> SEQUENCE: 3
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312 1 5 10 15
315 Thr Ile Ile Arg Lys Phe Glu Gly Gln Ser Arg Lys Phe Ile Ile Ala
316 20 25 30
319 Asn Ala Arg Val Glu Asn Cys Ala Val Ile Tyr Cys Asn Asp Gly Phe
320 35 40 45
323 Cys Glu Leu Cys Gly Tyr Ser Arg Ala Glu Val Met Gln Arg Pro Cys
324 50 55 60
327 Thr Cys Asp Phe Leu His Gly Pro Arg Thr Gln Arg Arg Ala Ala Ala
328 65 70 75 80
331 Gln Ile Ala Gln Ala Leu Leu Gly Ala Glu Glu Arg Lys Val Glu Ile
332 85 90 95
335 Ala Phe Tyr Arg Lys Asp Gly Ser Cys Phe Leu Cys Leu Val Asp Val
336 100 105 110
339 Val Pro Val Lys Asn Glu Asp Gly Ala Val Ile Met Phe Ile Leu Asn
340 115 120 125
343 Phe Glu Val Val Met Glu Lys Asp Met Val Gly Ser Pro Ala His Asp
344 130 135 140
347 Thr Asn His Arg Gly Pro Pro Thr Ser Trp Leu Ala Pro Gly Arg Ala
348 145 150 155 160
351 Lys Thr Phe Arg Leu Lys Leu Pro Ala Leu Leu Ala Leu Thr Ala Arg
352 165 170 175
355 Glu Ser Ser Val Arg Ser Gly Gly Ala Gly Gly Ala Gly Ala Pro Gly
356 180 185 190
359 Ala Val Val Val Asp Val Asp Leu Thr Pro Ala Ala Pro Ser Ser Glu
360 195 200 205
363 Ser Leu Ala Leu Asp Glu Val Thr Ala Met Asp Asn His Val Ala Gly
364 210 215 220
367 Leu Gly Pro Ala Glu Glu Arg Arg Ala Leu Val Gly Pro Gly Ser Pro
368 225 230 235 240
371 Pro Arg Ser Ala Pro Gly Gln Leu Pro Ser Pro Arg Ala His Ser Leu
372 245 250 255
375 Asn Pro Asp Ala Ser Gly Ser Ser Cys Ser Leu Ala Arg Thr Arg Ser
376 260 265 270
379 Arg Glu Ser Cys Ala Ser Val Arg Arg Ala Ser Ser Ala Asp Asp Ile
380 275 280 285
383 Glu Ala Met Arg Ala Gly Val Leu Pro Pro Pro Pro Arg His Ala Ser
384 290 295 300
387 Thr Gly Ala Met His Pro Leu Arg Ser Gly Leu Leu Asn Ser Thr Ser
388 305 310 315 320
391 Asp Ser Asp Leu Val Arg Tyr Arg Thr Ile Ser Lys Ile Pro Gln Ile
392 325 330 335
395 Thr Leu Asn Phe Val Asp Leu Lys Gly Asp Pro Phe Leu Ala Ser Pro
396 340 345 350
399 Thr Ser Asp Arg Glu Ile Ile Ala Pro Lys Ile Lys Glu Arg Thr His
400 355 360 365
403 Asn Val Thr Glu Lys Val Thr Gln Val Leu Ser Leu Gly Ala Asp Val

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VERIFICATION SUMMARY

PATENT APPLICATION: US/10/000,151

DATE: 12/10/2001

TIME: 15:02:01

Input Set : A:\HERG-KCR1.ST25.txt

Output Set: N:\CRF3\12102001\I000151.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:157 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1

L:163 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1

L:165 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1

L:167 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1

L:169 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1